

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-8, 10, and 12-59 are pending in the application, with claims 1, 24, 42, and 54 being the independent claims. Claim 11 is sought to be canceled without prejudice to or disclaimer of the subject matter therein. Claims 1 and 12 are sought to be amended. Claims 54-59 have also been added.

The amendment to claim 1 further recites that the C<sub>1-5</sub> alkyl ester is derived from a polyunsaturated vegetable oil containing less than about 2 percent of C18:3 or higher polyunsaturated fatty acids. Support for this amendment can be found, *inter alia*, in original claim 11 and in the specification at ¶ 0022. Claim 1 is also amended to make more clear that the catalyst and borohydride recited in step (b) is the same that is recited in step (a). The amendment to claim 12 merely changes its dependency from canceled claim 11 to amended claim 1.

Support for new claim 54 can be found, *inter alia*, in the claims as originally filed as well as the specification at ¶0014, ¶0018, ¶0019, ¶0021, ¶0022, ¶0024, and ¶0030. Support for new claim 55 can be found, *inter alia*, at ¶0030 of the specification. Support for new claims 56 and 57 can be found, *inter alia*, at ¶0031 of the specification. Support for new claim 58 can be found, *inter alia*, at ¶0029 of the specification. Support for new claim 59 can be found, *inter alia*, at ¶0027 of the specification.

These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

***Rejection under 35 U.S.C. § 103***

The Examiner rejected claims 1-8, 10, and 14-21 under 35 U.S.C. § 103(a) over DE-10121866 as translated ("DE '866") in view of U.S. Pat. No. 6,945,043 to Kenneally *et al.* ("the '043 patent"). Applicant respectfully traverses the Examiner's rejection.

Applicant disagrees with the basis of the rejection. However, solely to expedite prosecution and not in acquiescence to the rejection, Applicant has amended claim 1 to incorporate the limitations of claim 11, which the Examiner has indicated would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 2-8, 10, and 14-21 depend directly or ultimately from claim 1. Thus, Applicant respectfully submits that the rejection of claims 1-8, 10, and 14-21 is overcome by the foregoing amendment.

As mentioned above, new claims 54-59 have been added. Applicant takes the opportunity herein to explain why new claims 54-59 are not obvious over DE '866 in view of the '043 patent.

In order to make a *prima facie* case of obviousness, the Examiner must satisfy three basic criteria. First, there must be some suggestion or motivation, either in the references cited by the Examiner or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings to obtain Applicant's invention. *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58

(Fed. Cir. 1998). Second, there must be a reasonable expectation of success. *In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991). Third, all the claim limitations must be taught or suggested by the prior art references. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). The suggestion to make the claimed combination, as well as the reasonable expectation of success, must be found in the prior art references, not in Applicant's disclosure. *In re Vaeck*, 947 F.2d, 491, 20 U.S.P.Q.2d, 1442 (Fed. Cir. 1991). Applicant's claims 54-59 are not *prima facie* obvious based on DE '866 in view of the '043 patent.

#### ***Applicant's Invention***

Applicant's claimed invention as recited by independent claim 54 is directed to a process of producing a polyol monoester mixture comprising (a) combining a distilled fatty acid C<sub>1-5</sub> alkyl ester derived from a vegetable oil selected from the group consisting of genetically modified oil, soybean oil, linseed oil, corn oil, sunflower oil, canola oil, rapeseed oil, coconut oil, palm kernel oil, palm oil, cottonseed oil, peanut oil, olive oil, tall oil, safflower oil and derivatives and mixtures thereof, with a polyol in the presence of a catalyst and borohydride, and (b) heating the combined fatty acid C<sub>1-5</sub> alkyl ester and polyol in the presence of the catalyst and borohydride, thereby producing a polyol monoester mixture having a Lovibond color below about 0.6 Red and below about 1.5 Yellow without performing a carbon treatment or a bleaching decoloration step.

Thus, Applicant's claimed process as recited by independent claim 54 is directed to a process of producing a polyol monoester mixture having a Lovibond color below

about 0.6 Red and below about 1.5 Yellow without the use of a carbon treatment or a bleaching decoloration step.

***The Cited Art Does Not Render Any of Claims 54-59 Obvious***

Applicant's invention as recited by any of claims 54-59 is not obvious over DE '866 in view of the '043 patent.

DE '866 does not teach or suggest Applicant's inventive process as recited by claim 54. DE does not teach or suggest preparation of a polyol monoester mixture having a Lovibond color value below about 0.6 Red. In addition, although DE '866 discloses a process for the manufacture of fatty acid polyol esters having a Lovibond color value of "less than 10, preferably less than 5" Yellow (§0011 of DE '866), it does not teach or suggest that a polyol monoester mixture having a Lovibond color value below about 1.5 Yellow can be made without the use of a carbon treatment or bleaching decoloration step, as recited by Applicant's independent claim 54.

DE '866 provides only two examples of its process. Example 1 of DE '866 discloses a fatty acid trimethylol propane ester having a Lovibond color (Yellow) of 1.6 produced with a *final bleaching step* ("[f]inally, the raw ester was *bleached* at 80 °C by adding 0.3 Wt.-% 35 Wt.-% hydrogen peroxide, dried and filtered with the addition of filtering agents"). DE '866, page 5, second column, §0013 (emphasis added). Example 2 of DE '866 strongly implies that a bleaching step was also used ("[s]imilar to Example 1, 6 moles of the fatty acid methyl ester were converted with 153 g (1.6 moles glycerin)." DE '866, page 5, second column, §0014. Furthermore, the resulting Lovibond color value (Yellow) of the disclosed fatty acid glycerin ester produced in Example 2 of DE

'866 is 7.9, or 2.6 after a distillation step. *Id.* Neither of the Examples of DE '866 disclose a Lovibond color value for Red.

In contrast, in Applicant's invention as recited by independent claim 54, a distilled fatty acid C<sub>1-5</sub> alkyl ester is combined with a polyol in the presence of a catalyst and borohydride, and the combined fatty acid C<sub>1-5</sub> alkyl ester and polyol is heated in the presence of a catalyst and borohydride to produce a polyol monoester mixture having a Lovibond color value below about 0.6 Red and below about 1.5 Yellow, *without* a bleaching step.

Furthermore, as the Examiner admits, DE '866 does not disclose the source of the fatty acid alkyl ester used in its process. In contrast, in Applicant's invention as recited by claim 54, a distilled fatty acid C<sub>1-5</sub> alkyl ester derived from a vegetable oil selected from the group consisting of genetically modified oil, soybean oil, linseed oil, corn oil, sunflower oil, canola oil, rapeseed oil, coconut oil, palm kernel oil, palm oil, cottonseed oil, peanut oil, olive oil, tall oil, safflower oil and derivatives and mixtures thereof is used to prepare the claimed polyol monoester mixture.

As DE '866 does not teach or suggest preparation of a polyol monoester mixture having a Lovibond color below about 0.6 Red, nor of a polyol monoester mixture having a Lovibond color below about 1.5 Yellow without the use of a carbon treatment or bleaching decoloration step, nor the source of the fatty acid alkyl ester used in its process, a person of ordinary skill in the art reading DE '866 would not have been motivated to modify the reference to obtain Applicant's claimed invention as recited by independent claim 54. Therefore, claim 54 is not obvious over DE '866.

The '043 patent does not remedy the deficiencies of DE '866. The '043 patent is directed to processes for the synthesis of high purity fatty acid lower alkyl esters (Abstract). The '043 patent discloses a process for preparing a polyol fatty acid polyester by combining a "polyol, fatty acid lower alkyl ester, basic reaction catalyst, and optionally a soap . . . to form a heterogeneous mixture", heating the mixture, and adding excess fatty acid lower alkyl ester; or by heating "a mixture of a polyol, alkali metal fatty acid soap, basic catalyst . . . and excess fatty acid lower alkyl ester." (The '043 patent, Col. 11, ln. 53 to Col. 12, ln. 58 and Col. 13, lns. 24-28). The '043 patent does not disclose or suggest use of a borohydride for preparing a polyol fatty acid polyester, nor does it disclose a Lovibond color value associated with the polyol fatty acid polyesters produced by the disclosed methods.

Given the deficiencies of both DE '866 and the '043 patent, a person of ordinary skill in the art, reading both DE '866 and the '043 patent, would not have been motivated to combine the references and somehow obtain Applicant's inventive process recited by claim 54. Therefore, claim 54 is not obvious over DE '866 in view of the '043 patent.

Claims 55-59, which depend from independent claim 54, are not obvious over DE '866 in view of the '043 patent for at least the very same reasons independent claim 54 is not obvious. Therefore, Applicant respectfully submits that claims 54-59 are not obvious under 35 U.S.C. § 103(a) over DE '866 in view of the '043 patent.

***Indication of Allowable Subject Matter***

Applicant gratefully acknowledges the Examiner's indication that claims 24-53 are allowed. In addition, the Examiner indicated that claims 11-13, 22, and 23 would be

allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As discussed above, Applicant has amended claim 1 to include the limitations of claim 11, and has canceled claim 11. Claims 12, 13, 22, and 23 depend directly or ultimately from claim 1. Thus, Applicant respectfully requests that the Examiner withdraw the objection to claims 12, 13, 22, and 23.

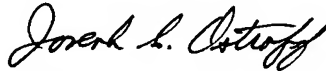
### ***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully  
requested.

Respectfully submitted,

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